HER

SURGEONS' BILLING PRACTICES FOR SELECTED SURGICAL PROCEDURES

Final Report

February 5, 1988

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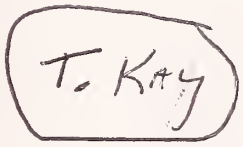

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SURGEONS' BILLING PRACTICES FOR SELECTED SURGICAL PROCEDURES

1.0 INTRODUCTION

1.1 Motivation

Concerns about the "inherent reasonableness" of the current Medicare method of physician reimbursement have led policymakers to examine the extent to which certain procedures are mispriced relative to the time and effort required. Variations in surgeon's billing practices within and across specialties or procedures as well as over time may limit the ability of policymakers to adjust levels of payment. While many surgeons historically have billed for surgical procedures based on a global surgical fee, the degree of variability in the composition of the global fee is unknown; for example, how many and what types of visits are included in the global fee rather than billed separately?

This report explores two aspects of surgeons' billing practices. First, have physicians changed the number of post-hospital office visits they provide in response to shorter hospital stays resulting from the introduction of Medicare's Prospective Payment System? Second, how likely are physicians to include in the global fee the pre-operative office visit in which the decision to operate is made as well as post-hospital office visits, and how does this vary across specialties or procedures? The motivation for each of these analyses is discussed separately.

1.1.1 Comparison of Post-Hospital Office Visits: 1982-1987

With the introduction of Medicare's Prospective Payment System (PPS) in fiscal year 1984, hospitals faced incentives to shorten lengths of inpatient stays and shift pre-admission testing and post-operative follow-up care to outpatient settings. The Medicare average length of stay dropped nationally from 10.2 days in 1982 to 8.8 days in 1984, a 7.1 percent annual decrease from 1982 to 1984.* Large decreases in average length of stay have been noted even in areas with relatively short stays. In the Pacific states, for example, pre-PPS stays averaged 8.5 days, while post-PPS stays averaged 7.4 days, a 13 percent decrease from 1982 to 1984.** (See Table 1-1.) By contrast, hospital

*Office of Technology Assessment, Medicare's Prospective Payment System: Strategies for Evaluating Cost, Quality, and Medical Technology, Washington, D.C.: OTA, 1985.

**Health Care Financing Administration, Health Care Spending Bulletin, No. 85-02, April 1985.

stays in New England averaged 11.8 days pre-PPS and 10.3 days post-PPS, a 12.5 percent decrease.

Whether physicians have increased the number of office visits they provide in response to shorter hospital stays is unknown. Medicare claims data cannot be used to answer this question because of global billing practices. In other words, the surgical bill may contain charges not only for the surgery itself, but also for hospital visits performed pre- and post-operatively, as well as office visits provided before and after hospitalization. Where office visits are packaged with the surgical bill, the number of separate bills for office visits will understate the actual number of visits performed. Thus, the 1987 Physicians' Practice Follow-up Survey asked physicians in seven surgical specialties about their billing practices and post-hospital office visit patterns for 23 procedures.

The composition of global surgical bills pre- and post-PPS has important implications for Medicare reimbursement policy. For example, if the number of post-hospital office visits included in the global surgical bill has decreased on average, together with a decrease in hospital visits, the global fee may overpay physicians, given a reduction in total effort. On the other hand, if post-hospital office visits have increased commensurate with the reduction in hospital visits, this ostensibly represents a shift in the locus of care with no reduction of effort. However, if we find no change in the number of office visits, the implications for setting payment levels are unclear -- in fact, post-hospital visits may require more time or be more complex in the post-PPS period due to shorter hospital stays.

1.1.2 Composition of Global Surgical Bills

Physicians' billing practices for services associated with surgical procedures may vary across specialty, geographic location, or even by procedure. Whether a physician's surgical bill includes the pre-operative office visit in which the decision to operate is made cannot be discerned from Medicare claims data because often a single, global bill is submitted. Similarly, global bills may include a wide range in the number of post-hospital office visits, but this too cannot be detected using Medicare claims data. And while surveys of Part B Medicare carriers reveal the practices that carriers follow in screening for inappropriate claims (such as billing for visits performed within a certain number of days post-operatively), they do not tell us the composition of global bills for individual physicians, especially the number of visits typically provided after discharge and the proportion included in the global fee. Thus, the 1987 Physicians' Practice Follow-up Survey obtained such data for 23 "high volume, high dollar" Medicare procedures.

Information about physicians' billing practices is critical in evaluating the "inherent reasonableness" of Medicare payments to physicians for "high volume, high dollar" surgical procedures. Without such information, the interpretation of time and complexity data could be misleading. Take, for example, two surgical procedures that involve roughly the same time and complexity. One procedure, however, involves several post-hospital follow-up office visits, while the other requires little follow-up care upon discharge from the hospital. It is important to know whether the bill for the former surgical procedure includes post-hospital office visits. If so, any adjustments in the payment level must take into account the additional services included in the global fee. Thus, an analysis of the composition of the global fee for selected surgical procedures may suggest the extent to which Federal policymakers could modify payments on high volume, high dollar Medicare procedures: that is, where several post-hospital visits are included, there may be less flexibility in reducing payments.

1.2 Summary of Findings

This report addresses two policy questions concerning surgeons' billing practices for 23 high volume, high dollar Medicare procedures:

- Has the number of post-hospital office visits changed in the past five years, since the implementation of Medicare's Prospective Payment System?
- What patterns are observed in the composition of the global surgical bill with respect to the pre-operative and post-hospital office visits?

The data source for this analysis is the 1987 Physicians' Practice Follow-up Survey, consisting of 2,499 physicians who responded to the 1984-85 Physicians' Practice Costs and Income Survey. The subsample for this report includes physicians in seven surgical specialties (general surgery, ophthalmology, orthopedic surgery, urology, obstetrics/gynecology, cardiovascular/thoracic surgery, and neurosurgery) who performed the selected procedures at least monthly and who were able to report complete data on billing practices.

Surgeons can be classified roughly into three groups based on the extent of follow-up care they provide. On the low end are cardiovascular/thoracic surgeons and obstetrician/gynecologists, providing two to three visits following a surgical procedure. Urologists, neurosurgeons, and general surgeons average four to five visits, while ophthalmologists and orthopedic surgeons are at the high end with six to seven visits.

The low number of post-hospital office visits reported by cardiovascular/thoracic surgeons suggests that medical specialists (i.e., cardiologists, internists) are providing follow-up care. For example, cardiovascular/thoracic surgeons provide an average of two post-hospital office visits following aortic valve replacement, pacemaker insertion (dual chamber), and coronary artery bypass graft surgery (3 artery). On the other hand, the high number of visits following ophthalmic and orthopedic surgery suggests the lack of appropriate physician substitutes following such surgery. Ophthalmologists provide an average of seven visits following a lens procedure with insertion of intraocular lens, while orthopedic surgeons average six visits following total hip and total knee replacement, femoral fracture with internal fixation, and hemilaminectomy for excision of herniated disk or decompression of nerve root.

Comparing across procedures, we found that follow-up care is virtually identical for abdominal versus vaginal hysterectomies. For carotid thromboendartectomy, neurosurgeons and cardiovascular/thoracic surgeons report very similar patterns of post-hospital care. Urologists provide slightly more follow-up care for suprapubic prostatectomy than for transurethral resection of the prostate (TURP) because the former is more invasive and more often used for cancer cases.

Physicians reported virtually no change in their post-hospital office visit patterns in the pre- and post-PPS time periods. Physicians apparently have not responded to length of stay reductions by increasing (or decreasing) the number of follow-up office visits they provide. There are several possible explanations for this finding. First, the marginal hospital day may be unnecessary, thus having no marginal impact on follow-up office visits. Second, the intensity (e.g., content or length) of each visit may have changed, eliminating the need for additional visits. Third, physician recall may be imperfect, masking real changes that may have occurred. Fourth, technological changes may reduce the need for additional follow-up care, such as staples that may be removed two days post-operatively, or stitches that dissolve.

Next, we examined the composition of the global surgical bill. General surgeons and obstetrician/gynecologists are more likely than other surgeons to include the pre-operative office visit in the global fee, with about half of these physicians not billing separately for the visit in which the decision to operate is made. In contrast, about 25 to 30 percent of orthopedic surgeons include the pre-operative visit in the global fee for four selected procedures and only 19 percent of ophthalmologists include the pre-operative office visit for a lens extraction with insertion of intraocular lens (IOL).

Compared to pre-operative visits, physicians were far more likely to include all or some post-hospital office visits in the global fee. At least three out of four surgeons included all such visits in the global fee, regardless of specialty and procedure. Over 90 percent of obstetrician/gynecologists include all post-hospital office visits following hysterectomy, while 25 to 30 percent of cardiovascular/thoracic surgeons bill separately for all follow-up office visits.

Consistent with their high volume of follow-up care, orthopedic surgeons have the longest follow-up period, averaging five months (in part because bones take a long time to heal). At the other extreme, obstetrician/gynecologists have a relatively short follow-up period of two months, with three-fourths including visits in the global fee for 31-90 days post-operatively. Ophthalmologists, on the other hand, tend to provide a relatively high number of visits (most of which are included in the global fee), but the post-operative time is relatively short (generally less than three months).

Several areas for further research are suggested by this work. First, information on the composition of surgeons' global fees will be critical in our work on overpriced procedures. In considering time spent on care surrounding the surgery, it will be important to take into account whether such care was actually included in the global fee.

Second, information from the physician's perspective, as obtained through the Physicians' Practice Follow-up Survey, should be brought together with information from carrier surveys, as well as with claims analyses. Such work will be performed under a separate, existing Cooperative Agreement from the Health Care Financing Administration. With these three pieces of information, we can hope to obtain a better understanding of services included in the global surgical bill versus those billed separately.

1.3 Organization of Report

The remainder of this report is organized in three sections. Section 2.0 describes the data base and sample used to perform this analysis. Section 3.0 presents the results of our comparison of post-hospital office visits pre- and post-PPS, for 23 surgical procedures across seven specialties. Section 4.0 examines the composition of the global bill with respect to pre-operative and post-hospital office visits.

2.0 METHODS

2.1 Data Source

This analysis is based on data from the Physicians' Practice Follow-up Survey (PPFS) conducted by NORC during the first six months of 1987. Physicians participating in the 1984-85 Physicians' Practice Costs and Income Survey (PPCIS) were asked follow-up questions on their practice arrangements, malpractice coverage, and Medicare participation. In addition, the interview included questions on the time and complexity involved in performing 10-15 selected medical or surgical procedures related to the particular specialty. Finally, surgeons were asked about the billing practices and office visit patterns associated with several surgical procedures.

The 1984-85 PPCIS included 4,729 physicians, with a response rate of 67.6 percent. The Follow-up Survey excluded physicians specializing in pediatrics, pathology, psychiatry, and "all other specialties" (except neurologists were included).* The sample for the follow-up survey consisted of 3,554 physicians, of which 2,499 physicians (74.2 percent) completed the interview. The completion rate ranged from 62.5 percent among cardiovascular/thoracic surgeons to 83.0 percent among neurologists. Statistical weights used in the analysis included adjustments for non-response in the original and follow-up surveys, as well as the disproportionate probability of selection.

This report focuses on physicians in seven surgical specialties: general surgery, ophthalmology, orthopedic surgery, urology, obstetrics/gynecology, cardiovascular/thoracic surgery, and neurosurgery. Physicians in these specialties were asked about the composition of global surgical bills as well as office visit patterns following surgery, now and five years ago (prior to the Medicare Prospective Payment System) for 23 "high volume, high dollar" Medicare surgical procedures. Specifically, physicians were asked:

- Does your global surgical bill for a/an (PROCEDURE) include the pre-hospital office visit in which the decision to operate is made?
- How many post-hospital office visits do you typically provide for a/an (PROCEDURE)?
- How many of these post-hospital office visits are included in your surgical bill for a/an (PROCEDURE)?

*This residual category includes physicians specializing in emergency medicine, rehabilitation medicine, occupational medicine, and general preventive medicine.

- For what period of time are post-hospital office visits included in the surgical bill for a/an (PROCEDURE)?

- Has the number of post-hospital office visits you provide for a/an (PROCEDURE) changed over the past five years? IF YES: How many (visits) did you provide then?

2.2 Scope of Sample

This report draws on two subsamples for analysis. The results in Section 3.0 are based on physicians who performed a procedure at least monthly and who were able to report the number of follow-up visits provided currently and five years ago. Table 2-1 displays the sample sizes for each procedure. Column 1 shows the number of physicians performing each procedure monthly and column 2 shows how many reported the number of office visits for both time periods. The results in Section 4.0 are based on physicians who performed a procedure at least monthly and who were able to report both the total number of post-hospital office visits typically provided and the number included in the global fee. The sample sizes for this analysis are presented in Column 3.

Attrition between columns 1 and 2, or columns 1 and 3, may occur for several reasons. First, some physicians were unwilling to indicate the number of visits provided to the typical patient because "there is no such thing as a typical patient" or they provide "as many visits as necessary." Second, some physicians were able to report the total number of visits provided currently, but did not know how many visits they provided five years ago or how many visits were included in the global fee. Third, some physicians refused to report the number of visits for both categories or simply did not know (i.e., for Section 3.0, visits in 1982 and 1987; for Section 4.0, total visits and visits in the global fee). Fourth, adjustments have been made for outliers that were more than twice as high as the next highest number. This occurred in only two cases. For example, a cardiovascular/thoracic surgeon reported 20 post-hospital office visits for an aortic valve replacement; the next highest number was 3. With only 7 physicians, the mean would be 4.0 visits; excluding the outlier, the mean falls to 1.3 visits.

Because of differences in the sample scope in Sections 3.0 and 4.0, some of the means may differ slightly. However, because of the small sample sizes for several procedures, our aim was to minimize attrition and to define the sample scope separately for each analysis.

As shown in Table 2-1, the sample sizes are quite small for certain specialties, notably cardiovascular/thoracic surgery and neurosurgery, and for certain procedures, such as scleral buckling, and hemilaminectomy for excision of herniated disk or decompression of nerve root. These results should be interpreted with caution.

TABLE 2-1

SCOPE OF SAMPLE

	Number of Physicians Performing Procedure At Least Monthly	Number of Physicians Reporting Visits* for Both 1982 and 1985 (Section 3)	Number of Physicians Reporting Total Visits* and Visits in Global Fee (Section 4)
General Surgery (n = 179)**			
Cholecystectomy with common duct exploration	84	76	77
Partial colectomy	134	120	119
Inguinal hernia repair	162	144	142
Modified radical mastectomy	119	104	105
Ophthalmology (n = 104)			
Lens extraction with IOL	70	64	65
Scleral buckling	6	6	6
Fistualization of sclera	12	11	11
Intracapsular lens extraction	18	16	16
Orthopedic Surgery (n = 104)			
Simple hip arthroplasty	65	52	55
Total knee replacement	53	44	46
Femoral fracture with internal fixation	50	43	45
Hemilaminectomy for excision of herniated disk or decompression of nerve root	36	30	33
Urology (n = 125)			
Transurethral resection of the prostate	124	110	111
Suprapubic prostatectomy	28	24	24
Obstetrics-Gynecology (n = 205)			
Total abdominal hysterectomy	174	160	161
Vaginal hysterectomy	113	105	105
Cardiovascular/ Thoracic Surgery (n = 25)			
3 artery CABG	9	6	7
Pacemaker insertion-dual chamber	6	6	6
Aortic valve replacement	7	5	6
Carotid thromboendarterectomy	13	11	12
Neurosurgery (n = 24)			
Craniectomy or craniotomy for evacuation of hematoma	22	21	21
Lumbar laminectomy for decompression of spinal cord	18	16	17
Carotid thromboendarterectomy	8	8	8

*Refers to post-hospital office visits associated with the selected surgical procedure.

**Number in parentheses refers to the total number of physicians in each specialty included in the Physicians' Practice Follow-up Survey.

Source: 1987 Physicians' Practice Follow-up Survey.

Another caveat concerns the physicians' understanding of the questions. Physicians were asked to report the number of post-hospital office visits. It is likely that some physicians reported the number of in-hospital post-operative visits. For example, one cardiovascular/thoracic surgeon reported five visits but commented, that he "just does the surgery; the cardiologist sees the patients when they return." This response has been edited to correct the physician's misunderstanding of the question. It is likely, however, that other physicians misunderstood the intent of this question and that measurement error exists.

Another source of misunderstanding concerns the "total number of post-hospital office visits currently provided to a typical patient." Six orthopedic surgeons (and a few physicians in other surgical specialties) reported zero visits. This, however, appears to reflect their billing practices rather than the level of follow-up care actually provided (as revealed in verbatim comments). This misunderstanding may stem from the lead-in to the billing practice questions: "The next few questions concern your usual billing practices for surgical procedures." These responses have been edited to correct an apparent misunderstanding of the question.

3.0 COMPARISON OF POST-HOSPITAL OFFICE VISITS: 1982-1987

3.1 Distribution of Visits

Table 3-1 shows the current pattern of post-hospital care for 23 "high volume, high dollar" Medicare surgical procedures, including the mean and distribution of visits. Based on the means we can classify physicians roughly into three groups based on the extent of follow-up care they provide. On the low end are cardiovascular/thoracic surgeons and obstetrician/gynecologists, providing two to three visits following a surgical procedure. Urologists, neurosurgeons, and general surgeons average four to five visits, while ophthalmologists and orthopedic surgeons are at the high end, with six to seven visits. In fact, physicians in these last two specialties are most likely to provide more than ten post-hospital visits.

We find some interesting similarities across procedures in office visit patterns. For example, obstetrician/gynecologists provide 2.6 visits post-hospital visits, on average, for both abdominal and vaginal hysterectomies. The distribution of visits is virtually identical with about two-thirds providing two or less visits, regardless of whether an abdominal or vaginal hysterectomy was performed.

Neurosurgeons and cardiovascular/thoracic surgeons were both asked about follow-up care for carotid thromboendarterectomy. Physicians in both specialties average about three and one-half visits, with 55-60 percent reporting less than three visits. Caution is advised because of small sample sizes, but the consistency between the two specialties may enhance our confidence in the data.

The low number of post-hospital visits reported by cardiovascular/ thoracic surgeons may reflect the fact that medical specialists, primarily cardiologists and internists, are providing follow-up care. For example, an average of 1.6 visits are provided following aortic valve replacement; 2.0 visits following a pacemaker insertion (dual chamber); and 1.8 visits following coronary artery bypass graft (CABG - 3 artery) surgery.

Urologists were asked about the office visit patterns for two similar procedures: transurethral resection of the prostate (TURP) and suprapubic prostatectomy. The TURP is a newer, and now more common, procedure. Urologists average one-third visit less following a TURP (4.0) versus a suprapubic prostatectomy (4.3). More extensive follow-up care may be provided following a suprapubic prostatectomy because it is more invasive and more likely to be used for cancer cases than a TURP. The distribution of visits reflects this difference with one-third of urologists providing more than four visits for a suprapubic prostatectomy, while only one-fourth provide more than four post-hospital visits for a TURP.

TABLE 3-1

DISTRIBUTION OF POST-HOSPITAL OFFICE VISITS FOR SELECTED SURGICAL PROCEDURES

	Average Number of Visits Currently Provided	PERCENT OF PHYSICIANS PROVIDING: 1-2 Visits	3-4 Visits	5-6 Visits	7-10 Visits	Over 10 Visits
General Surgery						
Cholecystectomy with common duct exploration	4.0	24.6%	47.6%	20.8%	3.9%	3.0%
Partial colectomy	4.4	18.4	49.1	20.1	8.6	3.7
Inguinal hernia repair	3.0	52.7	34.6	9.8	0.7	2.2
Modified radical mastectomy	5.4	6.3	44.7	27.8	15.6	5.6
Ophthalmology						
Lens extraction with IOL	6.6	1.6	18.6	42.4	32.5	4.9
Scleral buckling	4.8	29.5	--	52.4	18.2	--
Fistulization of sclera	7.4	--	17.7	42.9	17.7	21.6
Intracapsular lens extraction	7.3	6.5	5.3	49.6	21.1	17.4
Orthopedic Surgery						
Simple hip arthroplasty	6.5	23.3	22.9	22.1	17.6	14.1
Total knee replacement	6.1	18.2	28.3	26.4	18.8	8.3
Femoral fracture with internal fixation	6.2	7.2	36.5	34.4	13.2	8.6
Hemilaminectomy for excision of herniated disk or decompression of nerve root	5.8	10.7	33.3	37.6	12.1	6.3
Urology						
Transurethral resection of the prostate	4.0	25.2	52.2	18.1	1.7	2.8
Suprapubic prostatectomy	4.3	26.2	43.8	22.1	--	7.9
Obstetrics-Gynecology						
Total abdominal hysterectomy	2.6	64.8	25.8	5.1	4.4	--
Vaginal hysterectomy	2.6	68.8	25.7	1.8	3.7	--
Cardiovascular/ Thoracic Surgery						
3 artery CABG	1.8	67.5	32.5	--	--	--
Pacemaker insertion-dual chamber	2.0	66.9	33.1	--	--	--
Aortic valve replacement	1.6	81.9	18.1	--	--	--
Carotid thromboendarterectomy	3.5	54.6	7.5	28.5	9.4	--
Neurosurgery						
Craniectomy or craniotomy for evacuation of hematoma	4.2	12.3	49.5	28.7	9.5	--
Lumbar laminectomy for decompression of spinal cord	4.6	11.5	51.2	27.2	5.0	5.0
Carotid thromboendarterectomy	3.3	58.7	12.7	15.6	13.1	--

Source: 1987 Physicians' Practice Follow-up Survey.

Because most lens procedures are provided on an outpatient basis, ophthalmologists were asked about the number of post-operative (rather than post-hospital) visits usually provided. Ophthalmologists reportedly provide one-half visit less following a lens procedure that includes the insertion of an intraocular lens (IOL) compared to one without IOL insertion (6.6 vs. 7.3 visits).* However, this result may be unreliable due to the small number of physicians performing the lens extraction without IOL at least monthly (16 physicians) and the likelihood that they differ from the 64 physicians performing the lens procedure with IOL.

Both scleral buckling and fistulization of sclera are performed monthly by very few physicians in our sample (6 and 11 ophthalmologists, respectively). These procedures average 4.8 and 7.4 visits, respectively. Follow-up care for ophthalmologic procedures tends to be the sole province of ophthalmologists with no physician substitutes. This may explain the high number of office visits for follow-up care.

Orthopedic surgeons also tend to provide a relatively high number of follow-up office visits, in part because bones take a long time to heal and also because of a lack of appropriate physician substitutes. For all four selected orthopedic procedures, orthopedic surgeons provide an average of six visits, with simple hip arthroplasty (total hip replacement) apparently requiring the most follow-up care, 6.5 visits on average.

Of the selected surgical procedures performed by general surgeons, the modified radical mastectomy appears to require the most extensive follow-up care, averaging over five visits. General surgeons provide about one-half visit more following a partial colectomy (4.4) than a cholecystectomy with common duct exploration (4.0). Inguinal hernia repairs are a relatively routine procedure, averaging 3.0 visits, with over half the general surgeons providing less than three visits.

3.2 Comparison of Visits, 1982-1987

As can be seen in Table 3-2, 14 of the 23 procedures showed less than 1 percent change in post-hospital visits from 1982 to 1987, including seven with no change over the five year period. The most dramatic changes were among two ophthalmic procedures. For lens extraction with IOL, 81 percent of ophthalmologists reported no change from 1982 to 1987, while 12 percent

*Due to the small number of physicians (3 of 64) usually performing a lens procedure with IOL on an inpatient basis, it is not possible to compare billing practices for inpatient versus outpatient lens procedures.

TABLE 3-2

CHANGES IN POST-HOSPITAL OFFICE VISIT PATTERNS OVER THE PAST FIVE YEARS FOR SELECTED SURGICAL PROCEDURES

	COMPARISON OF VISITS TYPICALLY PROVIDED 1982 VS. 1987 (PERCENT OF PHYSICIANS)			AVERAGE NUMBER OF VISITS		
	Same	Less in 1987	More in 1987	1982	1987	Percent Change 1982 - 1987
General Surgery						
Cholecystectomy with common duct exploration 47610	95.3%	--	4.7%	4.0	4.0	1.31%
Partial colectomy 44140	95.6	3.6	0.9	4.5	4.4	-1.67
Inguinal hernia repair 49505	95.4	3.0	1.6	3.0	3.0	-1.13
Modified radical mastectomy 19240	95.3	2.1	2.6	5.4	5.4	0.00
Ophthalmology						
Lens extraction with IOL 66984	81.2	12.5	6.3	7.0	6.6	-4.93
Scleral buckling 67107	100.0	--	--	4.8	4.8	0.00
Fistulization of sclera 66170	82.3	8.0	9.8	7.0	7.4	5.19
Intracapsular lens extraction 66920	84.3	6.5	9.2	7.4	7.3	-0.85
Orthopedic Surgery						
Simple hip arthroplasty 27130	94.6	2.2	3.2	6.6	6.5	-0.55
Total knee replacement 27447	93.6	2.6	3.8	6.1	6.1	-0.35
Femoral fracture with internal fixation 27236	97.4	2.6	--	6.3	6.2	-1.72
Hemilaminectomy for excision of herniated disk or decompression of nerve root 63030	97.1	--	2.9	5.8	5.8	0.54
Urology						
Transurethral resection of the prostate 52601	97.3	1.7	1.0	4.0	4.0	-0.32
Suprapubic prostatectomy 55821	100.0	--	--	4.4	4.3	0.00
Obstetrics-Gynecology						
Total abdominal hysterectomy 58150	95.8	0.6	3.6	2.7	2.6	-0.46
Vaginal hysterectomy 58260	96.3	0.9	2.8	2.6	2.6	-2.50
Cardiovascular/ Thoracic Surgery						
3 artery CABG 33512 33206	100.0	--	--	1.8	1.8	0.00
Pacemaker insertion-dual chamber	100.0	--	--	2.0	2.0	0.00
Aortic valve replacement 33405	100.0	--	--	1.6	1.6	0.00
Carotid thromboendarterectomy 35301	100.0	--	--	3.5	3.5	0.00
Neurosurgery						
Craniectomy or craniotomy for evacuation of hematoma 61310	96.3	3.7	--	4.3	4.2	-1.11
Lumbar laminectomy for decompression of spinal cord 63030	93.7	6.3	--	4.7	4.6	-1.33
Carotid thromboendarterectomy 35301	100.0	--	--	3.3	3.3	0.00

Source: 1987 Physicians' Practice Follow-up Survey.

provided fewer post-operative visits in 1987 and 6 percent provided more visits. Overall, there was a 5 percent decrease, from an average of 7.0 to 6.6 post-operative visits. Follow-up visits for fistulization of sclera increased 5 percent from 7.0 to 7.4 post-hospital office visits.*

The pattern that emerges from Table 3-2 is one of "no change" from 1982-1987, despite the imposition of cost-containing measures by Medicare and other third-party payers. Physicians apparently have not responded to length of stay reductions by increasing (or decreasing) the number of follow-up office visits they provide. There are several possible explanations for this finding. First, the marginal hospital day may be unnecessary, thus having no marginal impact on follow-up office visits. Second, the intensity or content of each office visit may have changed, eliminating the need for additional visits. Third, physician recall may be imperfect, masking real changes that may have occurred. Fourth, technological changes may reduce the need for additional follow-up care, such as staples that may be removed two days post-operatively, or stitches that dissolve.

Before discussing the implications of these results (Section 3.4), we describe the variability in physician practice patterns over the two time periods by comparing the coefficients of variation.

3.3 Coefficients of Variation

The coefficient of variation (C.V.) measures the homogeneity of values and is calculated by dividing the standard deviation by the mean and multiplying by 100. Large C.V.s indicate a high degree of variation in the sample. In this analysis, we compare the C.V.s of average visits for 1982 versus 1987. An increase (decrease) in the C.V.s would suggest that there is greater heterogeneity (homogeneity) among physicians in their post-hospital office visit patterns, perhaps as a result of PPS.

Based on the finding in Section 3.2, we expect to find little difference in the C.V.s for average visits in 1982 versus 1987, because the means have not changed substantially over the two time periods. This is the case for most procedures, as shown in Table 3-3.

Obstetrician/gynecologists, however, show greater homogeneity in their post-hospital office visit patterns for abdominal and vaginal hysterectomies. The C.V.s fall 15-20 points from 1982 to 1987. It is unlikely that this is a function of PPS incentives to hospitals and physicians, given the vast

*Because of the small sample size (11 physicians) these results should be interpreted with caution.

TABLE 3-3

COEFFICIENTS OF VARIATION* FOR POST-HOSPITAL OFFICE VISITS, 1982 AND 1987

	COEFFICIENTS OF VARIATION	
	1982	1987
General Surgery		
Cholecystectomy with common duct exploration	66	65
Partial colectomy	74	74
Inguinal hernia repair	84	85
Modified radical mastectomy	63	63
Ophthalmology		
Lens extraction with IOL	50	44
Scleral buckling	66	66
Fistualization of sclera	55	51
Intracapsular lens extraction	58	58
Orthopedic Surgery		
Simple hip arthroplasty	85	82
Total knee replacement	77	74
Femoral fracture with internal fixation	73	69
Hemilaminectomy for excision of herniated disk or decompression of nerve root	66	65
Urology		
Transurethral resection of the prostate	64	64
Suprapubic prostatectomy	48	48
Obstetrics-Gynecology		
Total abdominal hysterectomy	76	61
Vaginal hysterectomy	88	67
Cardiovascular/Thoracic Surgery		
3 artery CABG	54	54
Pacemaker insertion-dual chamber	45	45
Aortic valve replacement	56	56
Carotid thromboendarterectomy	81	81
Neurosurgery		
Craniectomy or craniotomy for evacuation of hematoma	36	36
Lumbar laminectomy for decompression of spinal cord	67	68
Carotid thromboendarterectomy	98	98

*Represents the standard deviation divided by the mean multiplied by 100.

Source: 1987 Physicians' Practice Follow-up Survey.

majority of hysterectomies are performed on women under age 65.* Rather, it may indicate greater agreement among physicians on the follow-up care for hysterectomies.

As the C.V. approaches 100, the standard deviation is equal to the mean. The C.V.s for carotid thromboendarterectomy for both cardiovascular/thoracic surgeons and neurosurgeons are well above the average, indicating substantial variation in follow-up treatment for this procedure. This may, in part, be attributable to the referral of some patients to cardiologists and/or neurologists for post-surgical care. The C.V.s for orthopedic procedures are uniformly high, again suggesting variations in practice patterns. Some post-surgical care may be provided by non-physicians (e.g., physical therapists), or perhaps the number of visits is more directly related to the severity of the case.

3.4 Discussion

We have identified a distinct pattern across specialties in the level of post-hospital office visits. Obstetrician/gynecologists and cardiovascular/thoracic surgeons are at the low end, averaging two to three follow-up visits. General surgeons, neurosurgeons, and urologists average four to five visits, while ophthalmologists and orthopedic surgeons are at the high end, averaging six to seven visits. In part, the high number of visits among ophthalmologists and orthopedic surgeons may result from a lack of appropriate physician substitutes postoperatively. Cardiologists and neurologists, in particular, may substitute for cardiovascular/thoracic surgeons and neurosurgeons, respectively, in providing follow-up care.

We found virtually identical patterns of follow-up care for vaginal and abdominal hysterectomies. Urologists, however, average one-third visit less for TURPs than for suprapubic prostatectomies. Similarly, ophthalmologists average one-half visit less for lens extractions with insertion of intraocular ocular lens (IOL) versus those without IOL insertion (although this result may not be reliable due to small sample sizes and potential differences among physicians performing the two procedures). Both neurosurgeons and cardiovascular/thoracic surgeons were asked about follow-up care for carotid thromboendarterectomy and the mean and distribution of visits were remarkably similar despite the small sample sizes: both specialists average three and one-half visits and two-thirds provide less than three visits.

*According to the 1983 National Hospital Discharge Survey, 92 percent of hysterectomies were performed on women under age 65.

Next, we compared office visit patterns pre-PPS (1982) versus post-PPS (1987). Little difference was found, except among ophthalmologists. Post-operative visits decreased 5 percent on average for lens procedures with IOL insertion and increased 5 percent for fistulization of sclera. With the shift of most lens procedures to outpatient settings, the decrease in post-operative office visits and elimination of inpatient visits most likely signals a non-trivial reduction in the follow-up care provided.

These findings on pre- and post-PPS office visit patterns should be interpreted with caution. While most physicians indicate they have not changed the level of follow-up care in response to shorter inpatient stays, the data are silent on one aspect of those visits. Has the content of the visit changed? For example, does the visit take more time now versus five years ago? Is the visit more complex now, perhaps due to more post-discharge complications? Unfortunately, such information is not available from the Physicians' Practice Follow-up Survey. Although there is no evidence in the literature that visit content has changed post-PPS, this issue remains unresolved in interpreting our results.

Several additional caveats should be recognized. First, the sample sizes are small, with fewer than 20 physicians providing complete data in several cases. Small sample sizes may preclude the generalizability of our results to the population. Second, only gross adjustments have been made for physicians' frequency of performance by subsetting the sample to physicians who perform each procedure at least monthly. Yet a physician who performs a procedure once a day is not weighted differently from one who performs a procedure only once a month. Follow-up care may differ systematically with frequency of performance. Third, this analysis reflects practice patterns of surgical specialists only. If medical specialists are assuming increasing responsibility for follow-up care (post-discharge), this shift will not be captured in our analysis. Fourth, measurement error may exist due to imperfect recall on the number of visits provided five years ago, potentially masking real differences. Furthermore, as discussed in Section 2.2, some physicians may have misinterpreted the question and reported on post-operative hospital visits rather than post-hospital office visits.

In the next section we will examine several aspects of surgeons' billing practices: whether the global bill includes the pre-operative visit in which the decision to operate is made; the extent to which global bills include post-hospital office visits; and the time period during which visits are included. An analysis of the composition of the global fee for selected surgical procedure may suggest the extent to which Federal policymakers could modify payments for high volume, high dollar Medicare procedures; where several post-hospital visits are included, there may be less flexibility in reducing payments.

4.0 COMPOSITION OF GLOBAL SURGICAL BILL

4.1 Inclusion of Pre-Operative Office Visits

The Physicians' Practice Follow-up Survey asked physicians whether the global bill includes the pre-operative office visit in which the decision to operate is made. As can be seen in Table 4-1, general surgeons and obstetrician/gynecologists are more likely than other surgeons to include the pre-operative office visit in the global fee, with about half of these physicians not billing separately for pre-operative visits. For example, 60 percent of general surgeons include the pre-operative visits for a cholecystectomy with common duct exploration in the global fee, and 54 percent of obstetrician/gynecologists do so for an abdominal hysterectomy.

Among orthopedic surgeons, about 25 to 30 percent include the pre-operative visit in the global fee for the four selected procedures, suggesting relatively little within-specialty variation. In contrast, billing practices among ophthalmologists show no consistent pattern across procedures, with only 19 percent including the pre-operative office visit for a lens extraction with insertion of intraocular lens (IOL), compared to 43 percent for an intraocular lens extraction (without IOL). (This, however, may be a function of differences between physicians performing the two procedures as well as due to small sample sizes for the lens procedure without IOL.)

About one-third of cardiovascular/thoracic surgeons and neurosurgeons include the preoperative office visit for their selected procedures, with one exception. For carotid thromboendarterectomy, 42 percent of cardiovascular/thoracic surgeons but only 19 percent of neurosurgeons included the pre-operative office visit in the global fee. This difference may be attributable to small sample sizes, but in any case, we find a different pattern here than in Section 3.2 where the two specialty groups had similar post-PPS practice patterns for this common procedure.

Finally, urologists were slightly more likely to include the pre-operative office visit for a transurethral resection of the prostate (28 percent) compared to a suprapubic prostectomy (20 percent).

4.2 Extent of Post-Hospital Visit Coverage

Compared to pre-operative visits, physicians were far more likely to include all or some post-hospital office visits in the global fee (Table 4-1). At least three out of four surgeons included all such visits in the global fee, regardless of specialty and procedure. Obstetrician/gynecologists were most likely to include all post-hospital office visits: 93-96 percent

TABLE 4-1

OVERVIEW OF SURGEONS' BILLING PRACTICES

	COMPOSITION OF GLOBAL FEE (Percent of MDs)				
		Extent of Post-Hospital Visits Included in Global Fee			
	Pre-Operative Visit*	All	Some	None	Pre-Operative and all Post-Hospital Visits**
General Surgery					
Cholecystectomy with common duct exploration	59.6	83.7	2.6	13.7	52.9
Partial colectomy	54.9	89.8	2.1	8.1	53.0
Inguinal hernia repair	53.3	90.1	3.1	6.7	50.3
Modified radical mastectomy	49.1	85.1	5.7	9.2	43.1
Ophthalmology					
Lens extraction with IOL	19.3	90.7	9.3	--	17.7
Scleral buckling	34.2	86.6	--	13.4	34.2
Fistulization of sclera	0.0	89.2	10.8	--	0.0
Intracapsular lens extraction	42.9	90.8	9.2	--	42.9
Orthopedic Surgery					
Simple hip arthroplasty	31.1	77.4	11.2	11.4	29.5
Total knee replacement	29.5	75.8	17.4	6.7	25.4
Femoral fracture with internal fixation	31.5	70.0	16.4	13.7	31.5
Hemilaminectomy for excision of herniated disk or decompression of nerve root	25.0	78.7	11.3	10.0	25.0
Urology					
Transurethral resection of the prostate	28.3	86.9	7.8	5.2	22.7
Suprapubic prostatectomy	20.2	80.5	11.5	8.0	16.6
Obstetrics-Gynecology					
Total abdominal hysterectomy	53.5	92.9	3.6	3.5	49.9
Vaginal hysterectomy	51.6	95.5	2.7	1.8	49.8
Cardiovascular/ Thoracic Surgery					
3 artery CABG	28.4	74.7	--	25.3	28.4
Pacemaker insertion-dual chamber	31.2	86.1	--	13.9	31.2
Aortic valve replacement	30.6	69.4	--	30.6	30.6
Carotid thromboendarterectomy	41.6	75.1	8.6	16.3	32.4
Neurosurgery					
Craniectomy or craniotomy for evacuation of hematoma	35.9	86.9	4.7	8.4	26.5
Lumbar laminectomy for decompression of spinal cord	35.5	72.4	16.8	10.8	23.5
Carotid thromboendarterectomy	12.7	89.9	--	10.1	12.7

*Refers to the visit in which the decision to operate is made.

**Represents the percent of physicians who include both the pre-operative office visit and all post-hospital visits in the global fee.

Source: 1987 Physician's Practice Follow-up Survey.

report including all such visits following a hysterectomy in the global fee. On the other hand, cardiovascular/thoracic surgeons were most likely to bill separately for all follow-up office visits, particularly for CABG surgery (25 percent) and aortic valve replacement (31 percent). The pattern for carotid thromboendarterectomy again varies between cardiovascular/thoracic surgeons and neurosurgeons. Whereas 90 percent of neurosurgeons included all visits in the global fee, 75 percent of cardiovascular/thoracic surgeons did so.*

The final column of Table 4-1 shows the frequency with which physicians include all non-hospital care surrounding the surgery in the global fee, that is, the preoperative office visit in which the decision to operate is made, as well as all post-hospital office visits. Clearly, these figures are dominated by the physicians' billing practice for the pre-operative visit. Physicians who include the pre-operative visit in the global fee almost always include all post-hospital follow-up care as well. For example, 60 percent of general surgeons included the pre-operative office visit for a cholecystectomy, 84 percent included all post-hospital visits, and 53 percent included both types of visits surrounding hospitalization.

Table 4-2 shows the number of post-hospital office visits included in the global fee, on average, for physicians who include at least one visit in the global fee (column 1); the total number of visits provided by these physicians, on average (column 2); and the proportion of total visits included in the global fee (column 3). Because of the policy interest in partial versus full coverage of post-hospital office visits in the global fee, we focus on physicians who include at least one visit in the global fee.

The proportion of follow-up office visits included in the global fee is exceedingly high -- for most procedures over 90 percent. The two exceptions are suprapubic prostatectomy and carotid thromboendarterectomy performed by cardiovascular/thoracic surgeons, just below 90 percent.

There are several possible explanations for the reportedly high proportions of visits included in the global fee. First, physicians were asked about billing practices for the typical patient. It is likely that physicians bill separately for visits in the event of complications. Second, it is possible that our survey methodology masks differences in billing practices due to the general nature of the questions. If probed, physicians might indeed describe instances in which follow-up visits are billed separately, for example, based on the patient's insurance coverage.

*These results should be interpreted with caution due to small sample sizes.

TABLE 4-2

EXTENT OF POST-HOSPITAL OFFICE VISIT COVERAGE

	Average Number of Post-Hospital Office Visits in Global Fee* (1)	Average Number of Post-Hospital Office Visits Provided (2)	Percent of Total Post-Hospital Office Visits in Global Fee (3)
General Surgery			
Cholecystectomy with common duct exploration	4.3	4.3	98.9%
Partial colectomy	4.6	4.6	99.3
Inguinal hernia repair	3.1	3.1	99.6
Modified radical mastectomy	5.3	5.5	96.1
Ophthalmology			
Lens extraction with IOL	6.4	6.7	95.2
Scleral buckling	5.5	5.5	100.0
Fistulization of sclera	7.6	7.7	99.3
Intracapsular lens extraction	7.1	7.3	97.5
Orthopedic Surgery			
Simple hip arthroplasty	6.2	6.4	96.9
Total knee replacement	5.6	6.1	92.4
Femoral fracture with internal fixation	5.7	6.2	90.7
Hemilaminectomy for excision of herniated disk or decompression of nerve root	5.4	5.7	94.4
Urology			
Transurethral resection of the prostate	3.7	3.8	98.2
Suprapubic prostatectomy	4.0	4.5	88.9
Obstetrics-Gynecology			
Total abdominal hysterectomy	2.6	2.6	99.0
Vaginal hysterectomy	2.6	2.6	99.5
Cardiovascular/ Thoracic Surgery			
3 artery CABG	1.6	1.6	100.0
Pacemaker insertion-dual chamber	1.9	1.9	100.0
Aortic valve replacement	1.2	1.2	100.0
Carotid thromboendarterectomy	3.2	3.7	86.2
Neurosurgery			
Craniectomy or craniotomy for evacuation of hematoma	4.2	4.4	96.5
Lumbar laminectomy for decompression of spinal cord	4.2	4.5	91.7
Carotid thromboendarterectomy	3.8	3.8	100.0

*Based on physicians who include at least one post-hospital office visit in the global fee.

Source: 1987 Physicians' Practice Follow-up Survey.

4.3 Length of Post-Hospital Visit Coverage

In Section 3.1 we categorized surgical specialists according to the number of follow-up office visits associated with selected procedures. At the low end were obstetrician/gynecologists and cardiovascular/thoracic surgeons followed by general surgeons, urologists, and neurosurgeons with ophthalmologists and orthopedic surgeons at the high end. Consistent with their high volume of follow-up care, orthopedic surgeons have the longest follow-up period, averaging five months (see Table 4-3), in part because bones take a long time to heal. About one-third of orthopedic surgeons include visits in the global fee from 31-90 days and another third from 91-180 days. At the other extreme, obstetrician/gynecologists have a relatively short follow-up period of two months, with three-fourths including visits in the global fee for 31-90 days post-operatively. Again, the similarities between abdominal and vaginal hysterectomies are striking.

Ophthalmologists, on the other hand, tend to provide a relatively high number of visits (most of which are included in the global fee), but the post-operative time period is relatively short. For example, with lens extraction with IOL, the average number of follow-up visits is 6.7 visits, 95 percent of which are included in the global fee, but these visits occur within less than three months for the majority of ophthalmologists.

Urologists report a follow-up time period of slightly more than three months (101-102 days) and this is quite similar for the TURP and suprapubic prostatectomy.

Cardiovascular/thoracic surgeons report notably short office follow-up periods, probably because of the extensive follow-up provided by medical specialists (i.e., cardiologists, internists). However, the office follow-up for carotid thromboendarterectomy is considerably longer, averaging 164 days, versus 50 to 90 days for other procedures. Nevertheless, this is consistent with information reported by neurosurgeons on follow-up periods averaging 144 days for the same procedure.

General surgeons tend to include post-hospital visits in the global fee for less than 90 days for all four procedures. For example, about 70 percent of general surgeons average under 90 days for the cholecystectomy, mastectomy, and colectomy, while 80 percent average under 90 days for the hernia repair.

It should be noted that some physicians were unable or unwilling to report the average length of time for which visits were included in the global fee. Instead, they replied "as long as necessary," or "until the patient is well." This was particularly true among cardiovascular/thoracic surgeons and neurosurgeons. For the 3-artery CABG, for example, 43 percent of surgeons did

TABLE 4-3

LENGTH OF POST-HOSPITAL OFFICE VISIT COVERAGE*

	Average number of days	PERCENT OF PHYSICIANS REPORTING: 1-30 Days	31-90 Days	91-180 Days	181-365 Days	Over 365 Days	As long as necessary**
General Surgery							
Cholecystectomy with common duct exploration	121	16.1%	54.8%	6.7%	6.8%	3.0%	12.6%
Partial colectomy	84	19.1	53.4	10.4	3.1	1.1	12.8
Inguinal hernia repair	73	30.6	46.5	5.7	6.7	--	10.5
Modified radical mastectomy	111	15.1	48.7	12.9	9.2	1.3	12.8
Ophthalmology							
Lens extraction with IOL	105	4.4	57.9	32.9	1.3	--	3.4
Scleral buckling	99	--	60.5	39.5	--	--	--
Fistulization of sclera	120	--	54.2	37.8	8.0	--	--
Intracapsular lens extraction	88	6.6	68.6	10.7	--	--	14.0
Orthopedic Surgery							
Simple hip arthroplasty	169	7.8	36.6	36.1	16.0	3.5	--
Total knee replacement	147	12.9	33.0	38.5	11.7	2.0	2.0
Femoral fracture with internal fixation	153	10.0	37.0	37.0	11.1	2.3	2.6
Hemilaminectomy for excision of herniated disk or decompression of nerve root	157	3.0	39.3	37.2	17.2	--	3.3
Urology							
Transurethral resection of the prostate	101	11.8	65.4	16.0	5.0	--	1.8
Suprapubic prostatectomy	102	16.5	56.1	22.6	4.8	--	--
Obstetrics-Gynecology							
Total abdominal hysterectomy	63	13.7	73.9	6.9	1.2	--	4.3
Vaginal hysterectomy	60	8.1	77.8	7.7	--	--	6.5
Cardiovascular/ Thoracic Surgery							
3 artery CABG	72	16.9	40.2	--	--	--	42.9
Pacemaker insertion-dual chamber	50	22.3	57.5	--	--	--	20.1
Aortic valve replacement	90	--	71.6	--	--	--	28.4
Carotid thromboendarterectomy	164	--	57.0	--	23.5	--	19.5
Neurosurgery							
Craniectomy or craniotomy for evacuation of hematoma	123	--	44.9	31.4	--	--	23.7
Lumbar laminectomy for decompression of spinal cord	119	--	52.7	31.2	--	--	16.2
Carotid thromboendarterectomy	144	--	34.7	14.1	14.5	--	36.7

*Includes physicians who report any post-hospital office visits in the global fee.

**Some physicians were unwilling or unable to quantify the length of coverage for post-hospital office visits included in the global fee. The percentages are reported here, but these physicians are not included in the computation of the average number of days (column 1).

Source: 1987 Physicians' Practice Follow-up Survey.

not quantify the length of post-hospital coverage. Because the sample sizes in these two specialties are small to begin with, the means and distributions should be interpreted cautiously.

4.4 Discussion

Several very clear patterns emerge with respect to surgeons' billing practices for selected "high volume, high dollar" Medicare procedures. First, physicians are highly likely to include all follow-up office visits in their global fee, and second, they are much less likely to include the pre-operative office visit in the global fee. These patterns are generally found across specialties and procedures.

The proportion of follow-up office visits included in the surgical bill (among physicians including at least one visit in the fee) is exceedingly high -- in most cases over 90 percent, on average. The two exceptions are suprapubic prostatectomy and carotid thromboendarterectomy performed by cardiovascular/thoracic surgeons.

The length of follow-up office visit coverage varies across specialties but little within-specialty variation is found. Among orthopedic surgeons, there is a clear relationship between the large number of follow-up office visits and the lengthy follow-up period. Among obstetrician/gynecologists few follow-up visits are provided following hysterectomy and the follow-up period is quite short. Ophthalmologists follow a different pattern: many visits are provided (comparable to the orthopedic surgeons), but the follow-up period is only three to four months.

We had intended to examine variations in billing practices by employment arrangement, region, and urban/rural location. Unfortunately, the sample sizes were two small for any meaningful analysis (generally less than 5 cases in one or more cells). During the survey, we did find that employed physicians (e.g., by HMO, clinic, corporation) were less familiar with billing practices than their self-employed colleagues.

An important caveat must be recognized. The survey specifically asked surgeons about billing practices for the typical patient. This analysis suggests that surgeons generally do include most post-hospital care in the global fee, but the pre-operative office visit is far less likely to be included. Billing practices for cases with complications may in fact be quite different. Where the patient returns to the operating room, has a prolonged length of stay, or requires additional follow-up office care, the surgical bill may contain far less of the total care than for an uncomplicated case. Therefore, in considering the implications of these results, for the "inherent reasonableness" of surgical payments, policymakers must be mindful that they apply only to "uncomplicated" cases.

Furthermore, the survey did not focus specifically on billing practices under Medicare. To the extent that other insurers have their own criteria regarding length of post-hospital office visit coverage, for example, the results may not be directly applicable to Medicare.

Several areas for further research are suggested by this work. First, information on the composition of surgeons' global fees will be critical in our work on overpriced procedures. In considering time spent on care surrounding the surgery, it will be important to take into account whether such care was actually included in the global fee.

Second, information from the physician's perspective, as obtained through the Physicians' Practice Follow-up Survey, should be brought together with information from carrier surveys, as well as with claims analyses. Such work will be performed under a separate, existing Cooperative Agreement from the Health Care Financing Administration. With these three pieces of information, we can hope to obtain a better understanding of services included in the global surgical bill versus those billed separately.

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